

CLAIMS

1. A method of fabricating solder assemblies comprising the steps of:

(a) providing a component including a dielectric base having a non solder-wettable surface, a plurality of pads exposed to said surface and an electrically conductive potential plane element having a non solder-wettable surface, the potential plane element overlying said surface of said base, said potential plane element having openings therein, said pads being exposed through said openings;

(b) providing a mass of molten solder on each such pad so that the molten solder on each such pads wets the pad; and

(c) cooling the solder and pads to solidify the solder and thereby provide solder masses on said pads projecting through said openings in said potential plane element, at least some of said solder masses being electrically isolated from said potential plane element.

2. A method as claimed in claim 1 wherein at least some of said masses of molten solder contact the potential plane element while in the molten state but retract away from the potential plane element before said solidification step under the influence of surface tension of the molten solder.

3. A method as claimed in claim 1 wherein said potential plane element has at least one solder-wettable region, said step of providing said masses of molten solder including the step of providing a mass of molten solder in contact with at least one said solder-wettable region.

4. A method as claimed in claim 1 wherein said at least one solder-wettable region includes a solder-wettable region adjacent one or more pads of said component and wherein said step of providing masses of molten solder includes the step of providing a mass in contact with a pad and with a solder-wettable region of said potential plane so

that after said cooling step such mass will form a solder connection between such pad and said potential plane.

5. A method of making a component comprising the steps of:

(a) juxtaposing a surface of a dielectric base having a non solder-wettable surface and a plurality of solder-wettable pads at preselected locations exposed to said surface with a solder mask formed separately from said base, the solder mask incorporating a metallic layer and having holes at preselected locations and having a non solder-wettable surface on at least one side of the metallic layer, the juxtaposing step being performed so that a non solder-wettable surface of the solder mask layer faces away from the base and so that the holes in the solder mask are aligned with the pads on the base; and

(b) bonding the solder mask to the base.

6. A method as claimed in claim 5 wherein said solder mask includes a polymeric coating covering said metallic layer.

7. A method as claimed in claim 6 further comprising the step of applying said polymeric coating to said metallic layer by electrophoretic deposition.

8. A method as claimed in claim 5 further comprising the step of providing an adhesive on said solder mask before said juxtaposing step, said bonding step including the step of bonding said solder mask to said base by means of said adhesive.

9. A method as claimed in claim 5 wherein at least some of said pads on said base and said holes in said solder mask are disposed at center-to-center distances of about 1mm or less.

10. A method as claimed in claim 5 further comprising applying a flowable encapsulant in proximity to said base, said solder mask blocking flow of said encapsulant onto said terminals during said applying step.